Rocky Flats Environmental Technology Site

TYPE 1
RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

Buildings 124 and 129 Closure Project

REVISION 0

January 17, 2005

CLASSIFICATION REVIEW NOT REQUIRED PER
EXEMPTION NUMBER CEX-005-02

1/49

TYPE 1
RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

Buildings 124 and 129 Closure Project

REVISION 0

January 17, 2005

Reviewed by: _____ Date: 1/18/05
Don Risoli, Quality Assurance

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ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Emergency Response, Compensation and Liability Act
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity
VOCs	Volatile organic compounds

EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to enable facility "Typing" per the DPP (10/8/98) and compliant disposition and waste management of Buildings 124 and 129. Because these facilities were anticipated Type 1 facilities, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) requirements. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces (i.e., floors, walls, ceilings, roofs, equipment, and outside structures). The exterior radiological surveys for Buildings 124 and 129 were performed as part of the RISS West Side Exterior PDS strategy effort (authorized by Department of Energy letter, *02-DOE-01598*, dated December 13th, 2002 and approved by CDPHE letter, *RE: Proposed Deviations From The Pre-Demolition Survey Plan (PDSP)*, dated January 27, 2003; refer to the RISS Characterization Project Files for letter copies). Environmental media beneath and surrounding the facilities were not within the scope of this RLCR and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

The RLC encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report.

Results indicate that no radiological, beryllium, asbestos, or chemical contamination exists in excess of the PDSP unrestricted release limits. All demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*, as applicable. Based upon the data presented in this RLCR, Buildings 124 and 129 are considered Type 1 facilities. To ensure the facilities remain free of contamination and RLC data remain valid, Level 2 isolation controls have been established and the facilities posted accordingly.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of Buildings 124 and 129. Because these facilities are anticipated Type 1 facilities, a PDS characterization was performed. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces of the facilities (i.e., floors, walls, ceilings, roofs, equipment, and outside structures). Environmental media beneath and surrounding the facilities were not within the scope of this RLCR and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed, among these are Buildings 124 and 129. The location of these facilities is shown in Attachment A, *Facility Location Map*. These facilities no longer support the RFETS mission and require removal to reduce Site infrastructure, risks and/or operating costs.

Before these facilities can be removed, a Reconnaissance Level Characterization (RLC) must be conducted; this document presents the RLC results. The RLC was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The RLC built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report.

1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. An RLC is performed before Type 1 building demolition to define the pre-demolition radiological and chemical conditions of a facility. Pre-demolition conditions are compared with the unrestricted release limits for radiological and non-radiological contaminants. RLC results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of Buildings 124 and 129. This report also presents the pre-demolition radiological and chemical conditions of surrounding outside miscellaneous structures (e.g., storage tanks, sludge beds, pump pits and stations, a clearwell and valve shed associated with Buildings 124 and 129). Environmental media beneath and surrounding the facilities is not within the scope of this RLCR and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this RLC were the same DQOs identified in the Pre-Demolition survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

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2 HISTORICAL SITE ASSESSMENT

A facility-specific Historical Site Assessment (HSA) was conducted to understand the facility histories and related hazards. The assessment consisted of facility walk-downs, interviews, and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). These assessments were used to identify data gaps and needs, and to develop radiological and chemical characterization plans. The facility-specific HSAs were documented in a *Historical Site Assessment Report (HSAR) for the Area 5 - Group 4 Facilities*, dated September 2002, Revision 0. Refer to Attachment B, *Historical Site Assessment Report,* for a copy of the facility-specific HSAR. In summary, the HSAR did not identify any potential for radiological and chemical hazards in Buildings 124 and 129, except for asbestos.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Buildings 124 and 129, and outside structures, were characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to the RISS Characterization Project files).

Three radiological survey packages were developed for Buildings 124 and 129 (124501-interior, 129501-interior and 124MST-outside structures). The survey packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure.* Total surface activity (TSA), removable surface activity (RSA), and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures.* Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis.* Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control.*

One hundred and twenty-one (121) TSA measurements (45 random, 70 biased, and 6 QC) and one hundred and fifteen (115) RSA measurements (45 random, and 70 biased) were performed, and a minimum of 5% of the facility surfaces were scanned on the interior and/or exterior of each facility. Some of the outside miscellaneous structures (e.g., storage tanks, sludge beds, pump pits and stations, and clear well) had residual water in bottoms of the structures during the RLC. Prior to the RLC as much water was pumped out of these miscellaneous structures as practical, but due to continual ground water infiltration and the snowy weather, not all of the surfaces of the structures were dry during the RLC. However, due to the low potential for contamination in these structures, and the fact that the "bathtub ring" area of these structures (i.e., an area of the structures where contamination would collect if present) was surveyed during the RLC, the complete removal of the water for this RLC was not necessary.

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The clear well is the holding tank for all of the sites potable water after treatment. Since the clear well was a permitted confined space and the well had a very low potential for radioactive contamination, only accessible areas from the well manhole opening (including the "bathtub ring") were surveyed during the RLC.

The RLC data confirmed that these facilities do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps*. The radiological survey unit packages are maintained in the RISS Characterization Project files. Level 2 isolation control postings are displayed on the buildings to ensure no radioactive materials are inadvertently introduced.

The exterior radiological surveys for Buildings 124 and 129 were performed as part of the RISS West Side Exterior PDS strategy effort (authorized by Department of Energy letter, *02-DOE-01598*, dated December 13th, 2002 and approved by CDPHE letter, *RE: Proposed Deviations From The Pre-Demolition Survey Plan (PDSP)*, dated January 27, 2003; refer to the RISS Characterization Project Files for letter copies). The RISS West Side exterior building radiological surveys and locations can be found in survey unit package EXT-B-001, *RISS West Side Building Exteriors*. Five (5) biased TSA measurements, five (5) biased RSA measurements, and a one (1) square meter scan at each of the five TSA/RSA locations were performed at biased locations on the exterior surfaces of the facilities. The RLC data collected in exterior survey unit package EXT-B-001 confirmed that the exterior surfaces of these facilities do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey map locations for the West-Side Exterior survey unit package EXT-B-001 are maintained in the RISS Characterization Project files.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Buildings 124 and 129 were characterized for chemical hazards per the PDSP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on or in the facilities. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan (refer to RISS Characterization Project files) was developed during the planning phase that describes sampling requirements, the justification for the sample locations and estimated sample numbers. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, lead and PCBs. Refer to Attachment D, *Chemical Data Summaries and Sample Maps*, for details on sample results and sample locations.

Additionally, during closure of the emergency generator's diesel fuel storage tank by foaming, a release of diesel fuel occurred as the day tank's contents back flowed to the foamed tank. Complete removal of the tank will be the responsibility of the Building 124 project, and any diesel-contaminated soils encountered at that time will be managed appropriately. As part of removal, the tank will be punctured sufficiently to determine if any diesel remains and any free liquid encountered will be solidified and managed appropriately.

4.1 Asbestos

Sitex Enviromental Inc. performed an asbestos inspection of Building 124, dated December 31, 1996 (refer to Sitex report in Attachment D). The Sitex report identified both friable and non-friable asbestos containing building materials in Building 124. Friable asbestos was found in piping systems in spaces 001 and 101 and a non-friable asbestos containing countertop was identified in space 101.

During the RLC, a comprehensive, invasive asbestos inspection was conducted in Buildings 124 and 129, and outside structures, to determine the presence of friable and non-friable asbestos containing building materials. A CDPHE-certified asbestos inspector conducted the inspections and sampling in accordance with the *Asbestos Characterization Protocol, PRO-563-ACPR, Revision 1*. No materials suspected of containing asbestos were identified during the visual inspection in Building 129 as it is an uncoated concrete structure. Therefore, no asbestos sampling was performed in Building 129 as part of this RLC. Building 124 materials suspected of containing asbestos were identified for sampling at the discretion of the inspector. Four of the eighteen bulk samples of building materials suspected of containing asbestos were positive for ACM in Building 124. The wall paint/plaster in room 103 was trace chrysotile, the grout around the toilet vent pipe was 7% to 10% chrysotile and the putty on the exterior of the south and north side windows were 3% and 4% chrysotile respectively. Prior to the completion of the RLC, friable and non-friable asbestos abatement and satisfactory clearance sampling was conducted per CDPHE, Regulation No. 8, Part B, *Emission Standards for Asbestos*. Asbestos laboratory analysis data and sample location maps are contained in Attachment D, *Chemical Data Summaries and Sample Maps*.

4.2 Beryllium (Be)

Based on the HSAR and personnel interviews, Buildings 124 and 129 were anticipated Type 1 facilities. There was not, however, adequate historical and process knowledge to conclude that beryllium was not used or stored in these buildings or outside structures. Therefore, biased beryllium sampling was performed in accordance with the PDSP and the *Beryllium Characterization Procedure, PRO-536-BCPR, Revision 0, September 9, 1999*. Biased sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition.

All beryllium smear sample results were less than 0.1 $\mu g/100cm^2$ and meet the unrestricted release limits. Beryllium laboratory sample data and location maps are contained in Attachment D, *Chemical Data Summaries and Sample Maps*.

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4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on a review of the HSAR and facility walk-downs, there are no RCRA/CERCLA concerns in Buildings 124 and 129, or outside structures. These buildings were part of the RFETS water supply system. Small quantities of lab chemicals were used in the building as well as water treatment chemicals (e.g. calcium hypochlorite, sodium hydroxide, commercial flocculates, etc.). Building 129 was the primary area for storage of chlorine pellets (calcium hypochlorite). The basins outside of Building 124 were used to dry sediments from the backwash filters. There is no evidence or reason to suspect that RCRA/CERCLA contamination occurred in these buildings or basins. On this basis, RCRA/CERCLA constituent sampling was not performed in these facilities as part of the RLC.

Sampling for lead in paint in Buildings 124 and 129 was not performed. Environmental Waste Compliance Guidance #27, *Lead-based Paint (LBP) and Lead-based paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal.

Buildings 124 and 129 may contain RCRA regulated materials such as fluorescent lights and circuit boards. A thorough inspection of each facility will be made, and all regulated materials will be removed prior to demolition.

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSARs, interviews and facility walk-downs of Buildings 124 and 129, PCB-containing equipment was never present in the buildings or outside structures. Therefore, PCB sampling was not performed in these facilities as part of this RLC.

Based on the age of Buildings 124 and 129 (constructed before 1980), paints used are assumed to contain PCBs and all painted surfaces will be managed as PCB Bulk Product Waste. Because these facilities may contain fluorescent light ballasts containing PCBs, fluorescent light fixtures will be inspected to identify PCB ballasts during removal operations. PCB ballasts will be identified based on factors such as labeling (e.g., PCB-containing and non PCB-containing), manufacturer, and date of manufacturing. Ballasts that do not indicate non PCB-containing are assumed to be PCB-containing. Ballasts that are identified as PCB containing and are leaking (or weigh more than 9 pounds) will be removed prior to demolition. Non leaking PCB ballasts can remain in the building and be disposed of as PCB Bulk Product Waste.

5 PHYSICAL HAZARDS

Physical hazards associated with Buildings 124 and 129, and outside structures, consist of those common in standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. The facilities have been relatively well maintained and are in good physical condition, therefore, do not present hazards associated with building deterioration. However, care should be taken during demolition activities as Buildings 124 and 129 are near PAC 100-600 "Mercury Spill-Valve Vault 124-B, Building 124", NFA Approved in 1992. Additionally, care should be taken around the open basins and the underground clear well tank. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning Buildings 124 and 129, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments C and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original DQOs of the project.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- the *number* of samples and surveys;
- the *types* of samples and surveys;
- the sampling/survey process as implemented "in the field"; and,
- the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are provided in Attachment E.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Buildings 124 and 129 and outside structures will generate sanitary waste. Estimated waste volumes are presented below. All waste can be disposed of as sanitary waste, except PCB Bulk Product Waste. There is no radioactive or hazardous waste. PCB ballasts will be managed pursuant to Site PCB abatement and waste management procedures. The remnant sludge/sediment remaining in the outside Sludge Beds will be disposed of as offsite sanitary waste.

Waste Volume Estimates and Material Types							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste
124	7,300	0	1,900	0	1,300	0	None
129	1,400	0	400	0	0	0	None
Outside Structures	5,000	20	300	0	0	0	None

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Buildings 124 and 129 are classified as RFCA Type 1 facilities pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999) and are acceptable for demolition. The Type 1 classification is based on a review of historical and process knowledge, and newly acquired RLC data.

The RLC of Buildings 124 and 129, and outside structures, was performed in accordance with the DDCP and PDSP requirements. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Buildings 124 and 129, and outside structures, do not contain radiological or hazardous waste. Any PCB ballast materials will be managed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. All demolition debris will be managed in accordance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal,* as applicable. Environmental media beneath and surrounding the facility will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

To ensure Buildings 124 and 129 remain free of contamination and RLC data remain valid, Level 2 isolation controls have been established with the required postings to prevent the inadvertent introduction of contaminants.

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9 REFERENCES

DOE/RFFO, CDPHE, EPA, 1996. *Rocky Flats Cleanup Agreement (RFCA)*, July 19, 1996.

DOE Order 5400.5, *"Radiation Protection of the Public and the Environment."*

EPA, 1994. *"The Data Quality Objective Process,"* EPA QA/G-4.

K-H, 1999. *Decommissioning Program Plan*, June 21, 1999.

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 3, July 15, 2002.

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual*, December 1997 (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 1, May 22, 2001.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-563-ACPR, *Asbestos Characterization Procedure*, Revision 0, August 24, 1999.

PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999.

RFETS, *Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.*

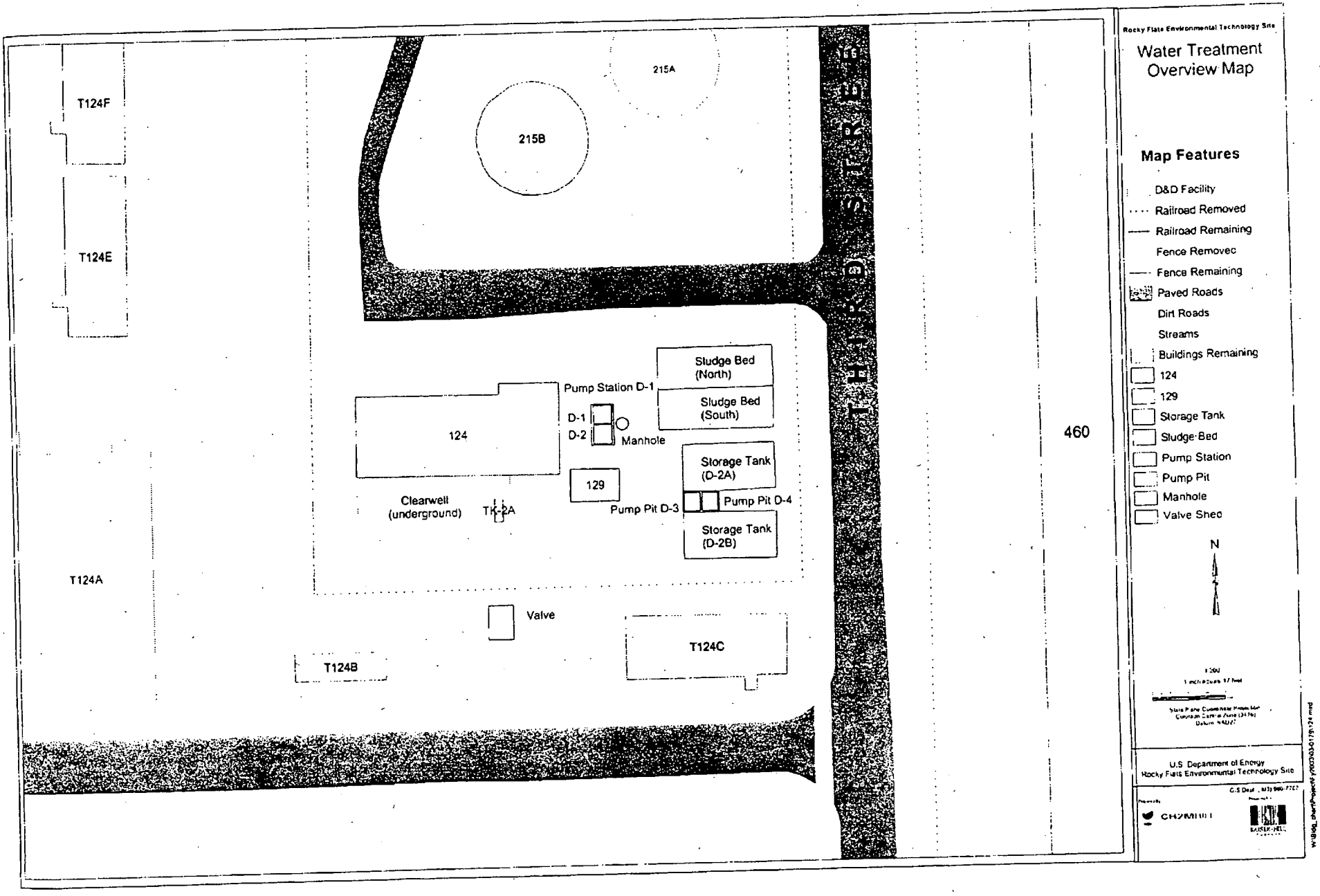
RFETS, *Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.*

RFCA Standard Operation Protocol for Recycling Concrete, September 28, 1999.

Historical Site Assessment Report for the Area 5 - Group 4 Facilities, dated September 2002, Revision 0.

ATTACHMENT A

Facility Location Map


T124F
T124E
T124A
T124B
T124C
215A
215B
124
129
460
Sludge Bed (North)
Sludge Bed (South)
Pump Station D-1
D-1
D-2
Manhole
Storage Tank (D-2A)
Pump Pit D-3
Pump Pit D-4
Storage Tank (D-2B)
Clearwell (underground)
TK-2A
Valve
Rocky Flats Environmental Technology Site
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Railroad Removed
Railroad Remaining
Fence Removec
Fence Remaining
Paved Roads
Dirt Roads
Streams
Buildings Remaining
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129
Storage Tank
Sludge Bed
Pump Station
Pump Pit
Manhole
Valve Shec
N
U.S. Department of Energy
Rocky Flats Environmental Technology Site

ATTACHMENT B

Historical Site Assessment Report

D&D RISS Facility Characterization
Historical Site Assessment Report
September, 2002 Rev. 0

Facility ID: (AREA 5 GROUP 4) Buildings 124 and 129.
Anticipated Facility Type (1, 2, or 3): Buildings 124 and 129 are anticipated Type 1 facilities.

This facility-specific Historical Site Assessment (HSA) has been performed in accordance with:
D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and
Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Physical Description

Building 124

Building 124 is a 3,625 square foot, three story, poured-in-place concrete structure built in 1953. The top floor is used as office space, the main floor contains the flocculation tank, sand filters, and a laboratory area. The basement contains the pumps and piping for transfer of water, the addition of sodium hydroxide and an emergency generator. There is a large clear well located under the under the main structure. East of Building 124 are 2 large concrete backwash storage tanks used to back flush the sand filters and two large concrete sludge drying beds used to de-water the backwash sludge. Building 124 also has a domestic water storage tower (Building 215A) and a domestic water storage tank (Building 215B) located to the north of Building 124.

Building 124 has the following utilities: electrical, plant water, plant sanitary, plant steam, and fire protection is provided by an overhead sprinkler system (in the emergency generator room only) and wall mounted fire extinguishers.

Building 129

Building 129 is a 528 square foot, two story, poured-in-place concrete building (with a concrete block second story) constructed in 1973. The building is located approximately 15 feet southeast of Building 124. The first floor houses the calcium hypochlorite pre-clorination system and is also used for storage of water treatment chemicals. The second floor contains the microstrainer, which is the first step in the raw water treatment process.

Building 129 has the following utilities: electrical, plant water, plant steam, and fire protection is provided by wall mounted fire extinguishers.

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Historical Operations

Building 124

Building 124 is the primary water treatment facility for supplying the site with domestic water and fire protection water. After the raw water is filtered through the microstrainer and pre-chlorinated in Building 129, the water is then piped to Building 124 were the water is further treated by flocculation (using Nalco polymers) in a clarifier tank, chemical treatment using sodium hydroxide, filtration using sand filters, and final settling in the 250,000-gallon clear well located below Building 124.

West of Building 124 are two concrete backwash storage tanks used to back flush the sand filters and two sludge drying beds used to de-water and dry the sludge from the sand filters. The dried sludge is disposed of at the sanitary landfill. The treated water is stored in Tanks 215A and 215B located north the Building 124. In addition, Tank 289 is an abandoned diesel storage tank, which has been foamed in place. These tanks are not in the scope of this HSA and are identified by information purposes only.

Building 129

Raw water first passes through the microstrainer, located on the second floor of in Building 129. The microstrainer is used to filter out algae before chemical addition. The microstrainer is a rotating drum powered by a two horsepower motor with a filtering fabric of finely woven stainless steel fitted to the drum. Calcium hypochlorite is added to water to kill pathogenic (disease-causing) organisms. The water chlorinating equipment and calcium hypochlorite storage is performed on the first floor of Building 129.

Current Operational Status

Building 124 and 129 are operational.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos:

Buildings 124 and 129 are posted as potentially containing asbestos. The Industrial Hygiene Group (IH) has collected some asbestos data on Buildings 124. Contact IH for a copy of this information.

Beryllium (Be)

Describe any potential, likely, or known Be production or storage locations:

None of the buildings addressed in this HSA are on the List of known Be Areas.

Summarize any recent Be sampling results:

There have been no recent Be samples collected on any of these facilities.

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Lead

Describe any potential, likely, or known sources of Lead (e.g., paint, shielding, etc.):

Based on the age Building 124 and 129 lead in paint may be a concern. No processes containing lead were conducted in these facilities.

RCRA/CERCLA Constituents

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e.g., chemical storage, waste storage, and processes):

Calcium hypochlorite and sodium hydroxide are used to chlorinate and treat the raw water. Nalco polymers are used the flocculent process. In the basement of Building 124 are three water level indicators associated which three pumps which utilize approximately 3 milliliters of mercury in automatic switch. These automatic switches do not have a history of leaking. See the Historical Operation section above for a more detailed description of the water treatment process.

Describe any potential, likely, or known spill locations (and sources, if any):

In January of 2002 a small quantity of diesel fuel leaked from the emergency generator day tank in the basement of 124. The spill was cleaned up and was documented in occurrence report RFO –KHLL-Utilities-2002-001.

Describe methods in which spills were mitigated, if any:

Diesel was absorbed with an appropriate absorbent and contaminated dirt was dug up.

PCBs

Describe any potential, likely, or known sources of PCBs (e.g., light ballasts, paints, equipment, etc.):

Building 124 or 129 did not house any PCB containing processes. Based on the age of construction of some of these facilities, PCBs in paint may be an issue.

Describe any potential, likely, or known spill locations (and sources, if any):

No PCB spills occurred in any of the facilities addressed in this HSA.

Describe methods in which spills were mitigated, if any:

No PCB spills occurred in any of the facilities addressed in this HSA.

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Radiological Contaminants

Describe any potential, likely, or known radiological production or storage locations:

None of the Buildings in this HSA are radiological posted. There was no radiological operation in any of these building. The sludge generated during the water treatment process has elevated radiological activity due to the naturally occurring uranium in the raw water. This Sludge is disposed on off site in a sanitary landfill.

Describe any potential, likely, or known spill locations (e.g., known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc.):

None

Describe methods in which spills were mitigated, f any:

None

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.):

None

Describe any potential, likely, or known external facility contamination (e.g., stack release points, unfiltered ventilation, facility's physical location to known site releases, etc.):

See section below for information on IHSSs PACs, and UBCs.

Environmental Restoration Concerns

Describe any ER concerns that could affect facility characterization (e.g., IHSSs, PACs, UBCs):

Building 124 and 129 are located near the following PACs:

1) PAC 100-600 "Mercury Spill–Valve Vault 124-B, Building 124", NFA Approved in 1992.

Additional Information

Describe any additional information that may be useful during facility characterization (e.g., contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc.):

None

References

Provide all sources of information utilized to gather data for facility history (e.g., documents, files, interviews):

Sources reviewed to complete this HSA were the RFETS Facility List, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases. The WSRIC for those buildings with a WSRIC. In addition, a facility walkdown and interviews were performed.

Waste Volume Estimates and Material Types							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
Building 124	7,300	0	1,900	0	1,300	TBD	N/A
Building 129	1,400	0	400	0	0	TBD	N/A

Further Actions

Recommend any further actions, if any (e.g., characterization, decontamination, special handling, etc.):

Begin the RLC/PDS process.

Note:

This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package preparations. SMEs should evaluate and/or verify all information during the RLC/PDS process. SMEs may need to review additional documentation and perform additional interviews. Information contained in this HSA only represents a "snapshot" in time. Subsequent data may be obtained during SME walkdowns and chemical and radiological characterization package preparations, which may conflict with this report. *However, this report will not be amended,* and the newer data will take precedence over the data in this report. Newer Data will appear in the RLCR/PDSR.

Prepared By: Doug Bryant / /s/ / September 2002

Name Signature Date

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ATTACHMENT C

Radiological Data Summaries and Survey Maps

Survey Area: 5	Survey Unit: 124501	Building: B124

Description: B124(Interior),all surfaces

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0 | Nbr QC Required: 2

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 40 | Nbr QC Performed: 2

Alpha

Maximum:	38.0 dpm/100cm²
Minimum:	-8.9 dpm/100cm²
Mean:	7.2 dpm/100cm²
Standard Deviation:	9.9
QC Maximum:	16.5 dpm/100cm²
QC Minimum:	14.6 dpm/100cm²
QC Mean:	15.5 dpm/100cm²
Transuranic DCGLw:	100.0 dpm/100cm²
Transuranic DCGLemc:	300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 40

Alpha

Maximum:	1.8 dpm/100cm²
Minimum:	-1.2 dpm/100cm²
Mean:	-0.6 dpm/100cm²
Standard Deviation:	0.7
Transuranic DCGLw:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 0 | Nbr Biased Required: 0

Nbr Random Collected: 0 | Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

Survey Area: 5	Survey Unit: 124501	Building: B124

Description: B124(Interior),all surfaces

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	700831	10/06/04	Electra	3104	DP-6	03/17/05	0.212	NA	48.0	NA	T/S
2	712193	10/06/04	Electra	1261	DP-8	02/26/05	0.172	NA	48.0	NA	S
3	700831	10/06/04	Electra	3127	DP-6	02/16/05	0.207	NA	48.0	NA	T/S
4	712193	10/06/04	Ludlum 292	99042	NA	10/26/04	0.349	NA	10.0	NA	R
5	712467	10/07/04	Electra	3127	DP-6	02/16/05	0.207	NA	48.0	NA	T/S
6	711447	10/07/04	Electra	3250	DP-6	02/14/05	0.203	NA	48.0	NA	Q/S
7	712193	10/07/04	Ludlum 292	99042	NA	10/26/04	0.349	NA	10.0	NA	R
8	712193	01/04/05	Electra	665	DP-6	05/18/05	0.208	NA	48.0	NA	S
9	712467	01/04/05	Electra	2352	DP-6	06/09/05	0.222	NA	48.0	NA	S

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

Survey Area: 5	Survey Unit: 124501	Building: B124

Description: B124(Interior),all surfaces

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
124501PRP-N001	4	-0.9	N/A	
124501PRP-N002	4	-0.9	N/A	
124501PRP-N003	4	-0.9	N/A	
124501PRP-N004	4	0.5	N/A	
124501PRP-N005	4	-0.9	N/A	
124501PRP-N006	4	-0.9	N/A	
124501PRP-N007	7	0.3	N/A	
124501PRP-N008	4	-0.9	N/A	
124501PRP-N009	7	-1.2	N/A	
124501PRP-N010	4	-0.9	N/A	
124501PRP-N011	4	-0.9	N/A	
124501PRP-N012	4	-0.9	N/A	
124501PRP-N013	4	-0.9	N/A	
124501PRP-N014	4	-0.9	N/A	
124501PRP-N015	4	-0.9	N/A	

Survey Area: 5	Survey Unit: 124501	Building: B124

Description: B124(Interior),all surfaces

Biased Removable Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
124501PBP-N016	4	-0.9	N/A	
124501PBP-N017	4	-0.9	N/A	
124501PBP-N018	4	0.5	N/A	
124501PBP-N019	4	0.5	N/A	
124501PBP-N020	4	-0.9	N/A	
124501PBP-N021	4	-0.9	N/A	
124501PBP-N022	7	1.8	N/A	
124501PBP-N023	7	-1.2	N/A	
124501PBP-N024	7	0.3	N/A	
124501PBP-N025	7	-1.2	N/A	
124501PBP-N026	4	-0.9	N/A	
124501PBP-N027	4	0.5	N/A	
124501PBP-N028	4	0.5	N/A	
124501PBP-N029	4	-0.9	N/A	
124501PBP-N030	4	0.5	N/A	
124501PBP-N031	4	-0.9	N/A	
124501PBP-N032	4	-0.9	N/A	
124501PBP-N033	4	0.5	N/A	
124501PBP-N034	4	-0.9	N/A	
124501PBP-N035	4	-0.9	N/A	
124501PBP-N036	4	-0.9	N/A	
124501PBP-N037	4	-0.9	N/A	
124501PBP-N038	4	-0.9	N/A	
124501PBP-N039	4	0.5	N/A	
124501PBP-N040	4	-0.9	N/A	
124501PBP-N041	7	-1.2	N/A	
124501PBP-N042	7	-1.2	N/A	

Survey Area: 5	Survey Unit: 124501	Building: B124

Description: B124(Interior),all surfaces

Biased Removable Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
124501PBP-N043	7	0.3	N/A	
124501PBP-N044	7	0.3	N/A	
124501PBP-N045	7	-1.2	N/A	
124501PBP-N046	7	-1.2	N/A	
124501PBP-N047	7	-1.2	N/A	
124501PBP-N048	7	-1.2	N/A	
124501PBP-N049	7	-1.2	N/A	
124501PBP-N050	7	-1.2	N/A	
124501PBP-N051	7	0.3	N/A	
124501PBP-N052	7	-1.2	N/A	
124501PBP-N053	7	-1.2	N/A	
124501PBP-N054	7	-1.2	N/A	
124501PBP-N055	7	-1.2	N/A	

Comments:

Survey Area: 5	Survey Unit: 124501	Building: B124

Description: B124(Interior),all surfaces

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
124501PRP-N001	3	-8.9	N/A	
124501PRP-N002	1	2.3	N/A	
124501PRP-N003	3	0.7	N/A	
124501PRP-N004	1	5.1	N/A	
124501PRP-N005	3	9.0	N/A	
124501PRP-N006	3	17.2	N/A	
124501PRP-N007	5	7.5	N/A	
124501PRP-N008	3	-0.7	N/A	
124501PRP-N009	5	5.6	N/A	
124501PRP-N010	1	-1.0	N/A	
124501PRP-N011	1	3.7	N/A	
124501PRP-N012	1	7.0	N/A	
124501PRP-N013	3	1.2	N/A	
124501PRP-N014	3	7.5	N/A	
124501PRP-N015	1	9.8	N/A	
124501QRP-N028	6	14.6	N/A	
124501QRP-N043	6	16.5	N/A	

Survey Area: 5	Survey Unit: 124501	Building: B124

Description: B124(Interior),all surfaces

Biased Total Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
124501PBP-N016	1	1.9	N/A	
124501PBP-N017	1	6.6	N/A	
124501PBP-N018	3	-0.7	N/A	
124501PBP-N019	3	-7.4	N/A	
124501PBP-N020	1	-2.9	N/A	
124501PBP-N021	3	2.2	N/A	
124501PBP-N022	5	-2.6	N/A	
124501PBP-N023	5	-0.7	N/A	
124501PBP-N024	5	5.6	N/A	
124501PBP-N025	5	5.6	N/A	
124501PBP-N026	3	5.6	N/A	
124501PBP-N027	1	9.9	N/A	
124501PBP-N028	1	25.5	N/A	
124501PBP-N029	3	5.6	N/A	
124501PBP-N030	3	10.5	N/A	
124501PBP-N031	3	-4.0	N/A	
124501PBP-N032	1	5.2	N/A	
124501PBP-N033	3	11.9	N/A	
124501PBP-N034	1	20.7	N/A	
124501PBP-N035	1	14.6	N/A	
124501PBP-N036	3	4.2	N/A	
124501PBP-N037	3	13.8	N/A	
124501PBP-N038	3	21.6	N/A	
124501PBP-N039	3	9.0	N/A	
124501PBP-N040	3	0.8	N/A	
124501PBP-N041	5	34.6	N/A	
124501PBP-N042	5	29.8	N/A	

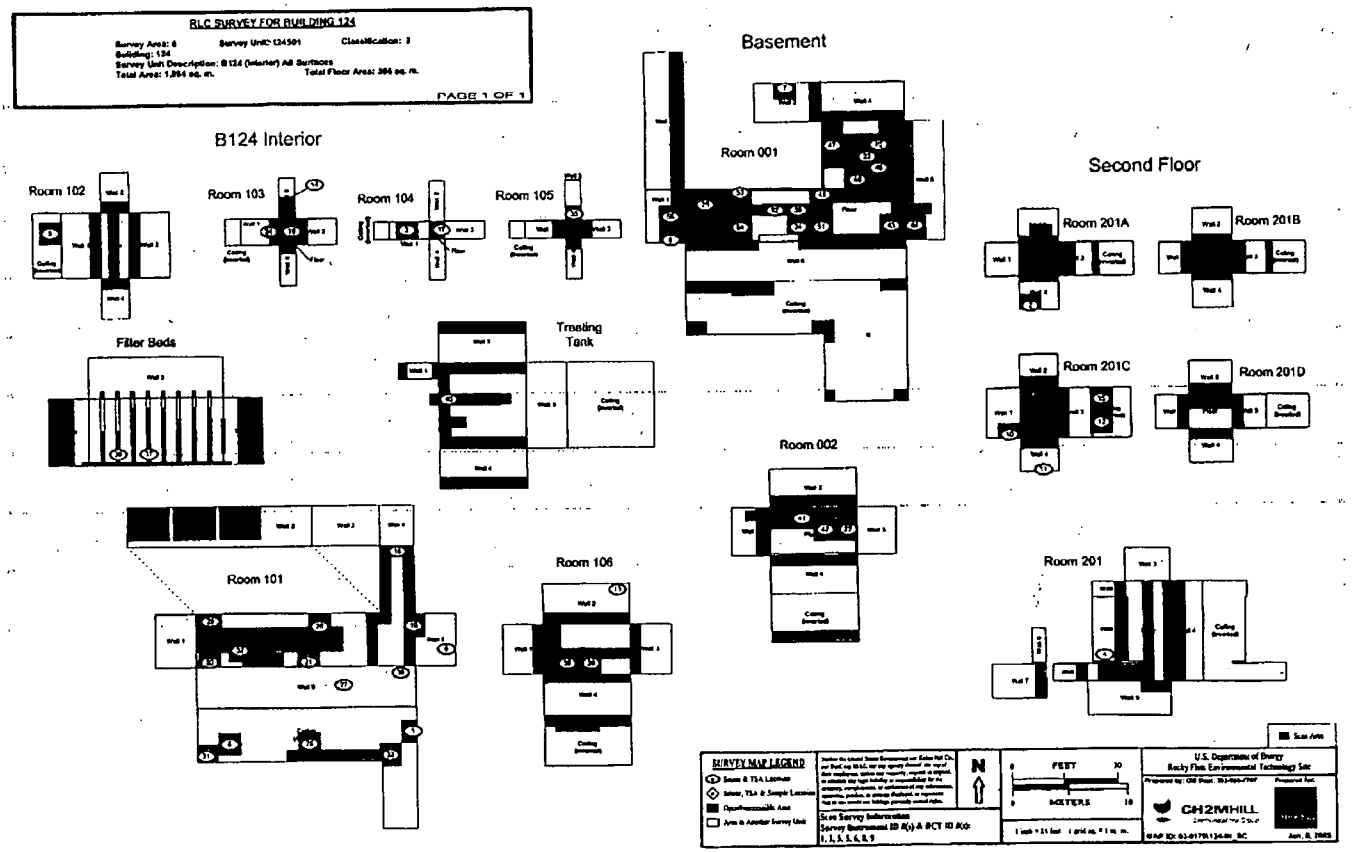
Survey Area: 5	Survey Unit: 124501	Building: B124

Description: B124(Interior),all surfaces

Biased Total Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
124501PBP-N043	5	38.0	N/A	
124501PBP-N044	5	17.2	N/A	
124501PBP-N045	5	-4.0	N/A	
124501PBP-N046	5	11.9	N/A	
124501PBP-N047	5	9.0	N/A	
124501PBP-N048	5	-8.9	N/A	
124501PBP-N049	5	5.6	N/A	
124501PBP-N050	5	11.9	N/A	
124501PBP-N051	5	-7.4	N/A	
124501PBP-N052	5	5.6	N/A	
124501PBP-N053	5	-0.7	N/A	
124501PBP-N054	5	11.9	N/A	
124501PBP-N055	5	11.9	N/A	

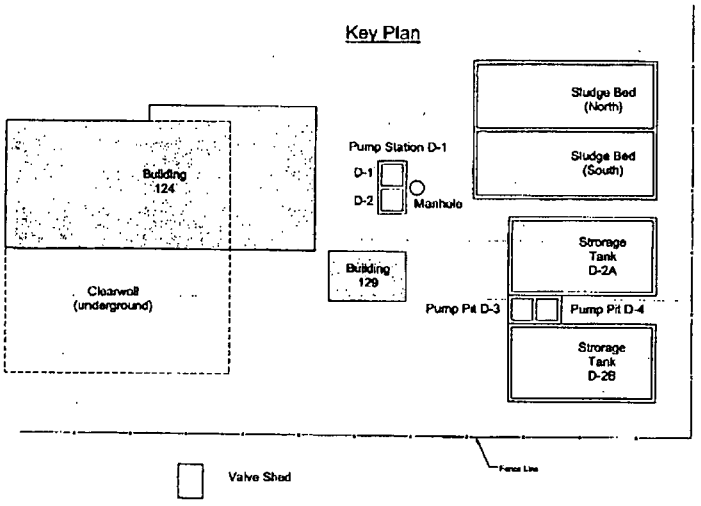
Comments:

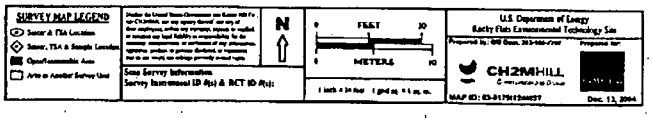

RLC SURVEY FOR BUILDING 124
PAGE 1 OF 1
B124 Interior
Basement
Second Floor
Room 102
Room 103
Room 104
Room 105
Room 001
Room 201A
Room 201B
Filter Beds
Treating Tank
Room 201C
Room 201D
Room 002
Room 101
Room 106
Room 201
SURVEY MAP LEGEND
N
FEET
METERS
U.S. Department of Energy
Rocky Flats Environmental Technology Site
CH2MHILL

RLCIPDS FOR THE WATER TREATMENT PLANT

Survey Area: 6 Survey Unit: 124MST Classification: 3
Building: 124
Survey Unit Description: Bldg 124 Miscellaneous Structures (above ground pipes, basins, and equipment)
Total Area: N/A sq. m. Total Floor Area: N/A sq. m.

PAGE 1 OF 1





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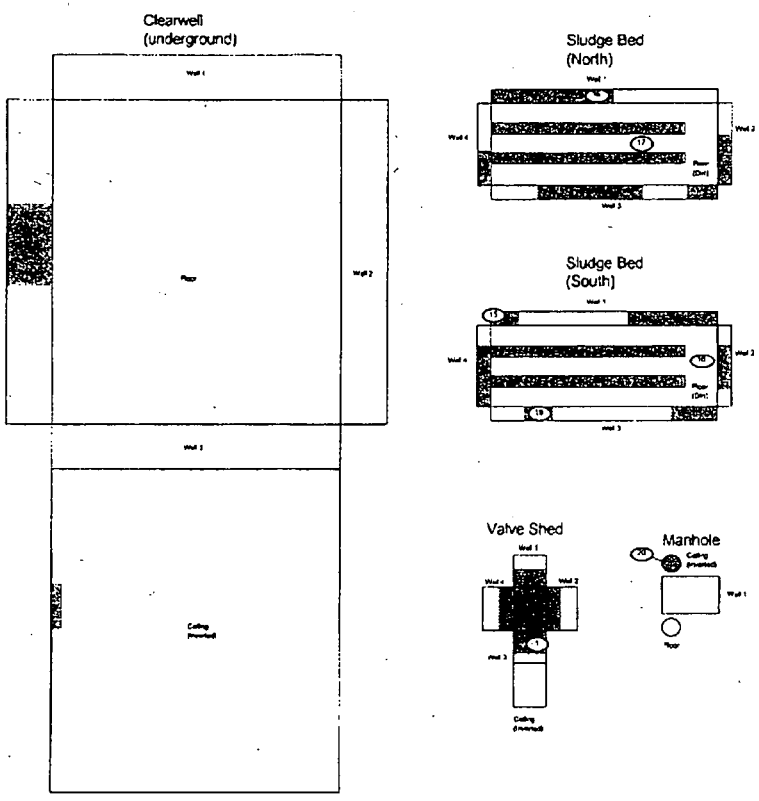
RLC/PDS FOR THE WATER TREATMENT PLANT

Survey Area: 5 Survey Unit: 124MST Classification: 3
Building: 124
Survey Unit Description: Bldg 124 Miscellaneous Structures (above ground pipes, basins, and equipment)
Total Area: 1,954 sq. m. Total Floor Area: 841 sq. m.

PAGE 1 OF 1



SURVEY MAP LEGEND

- Sewer & TSA Location
- Sewer, TSA & Sample Location
- Obstructionable Area
- Area in Another Survey Unit

Scan Survey Information
Survey Instrument ID #(s) & RCT ID #(s):
1-6

N

FEET 0 30
METERS 0 10

1 inch = 24 feet 1 grid sq. = 1 sq. m

U.S. Department of Energy
Rocky Flats Environmental Technology Site

CH2MHILL

MAP ID: 63-0179-124MST_1_BC

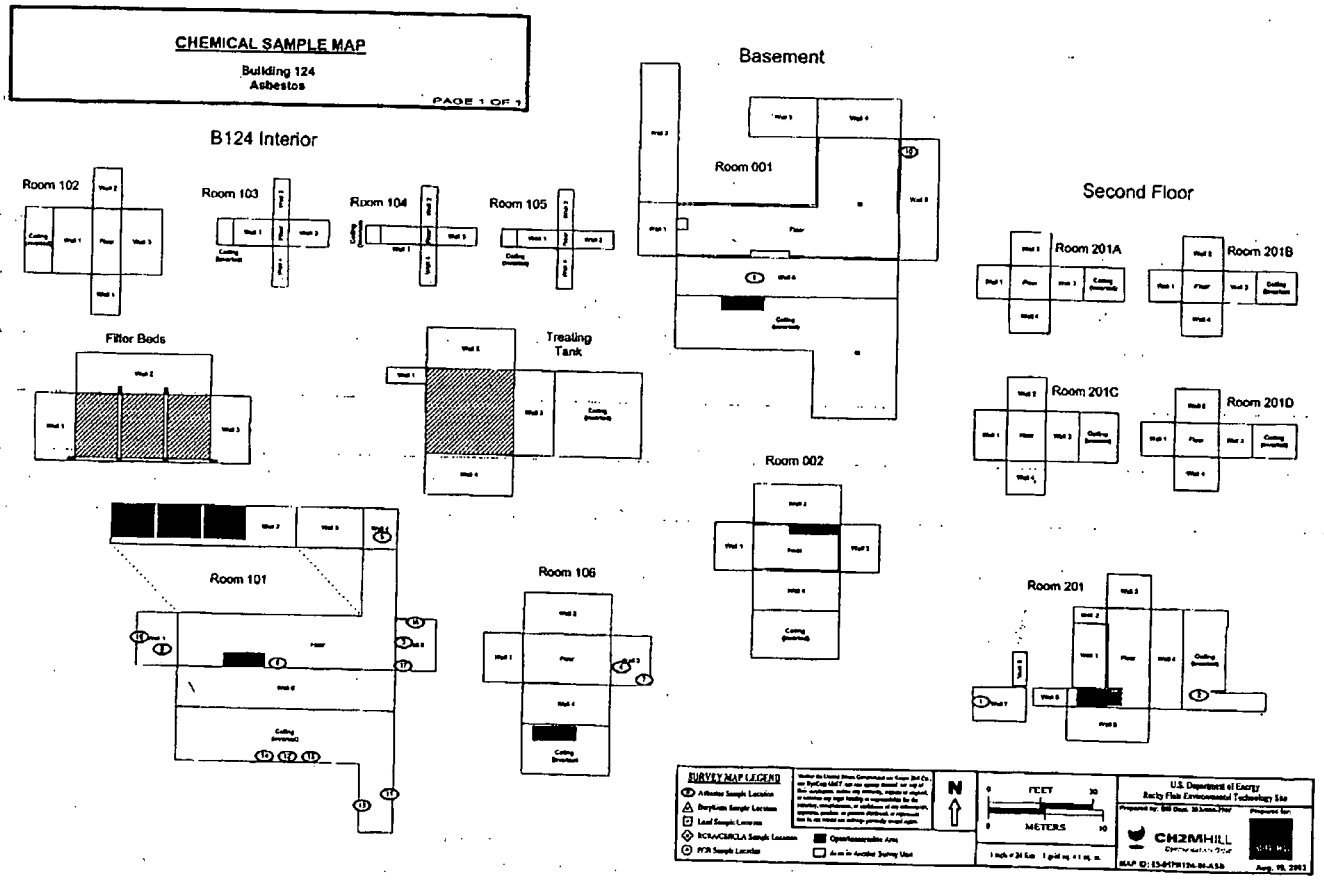
Jan. 24, 2005

ATTACHMENT D

Chemical Data Summaries and Sample Maps

Asbestos Data Summary

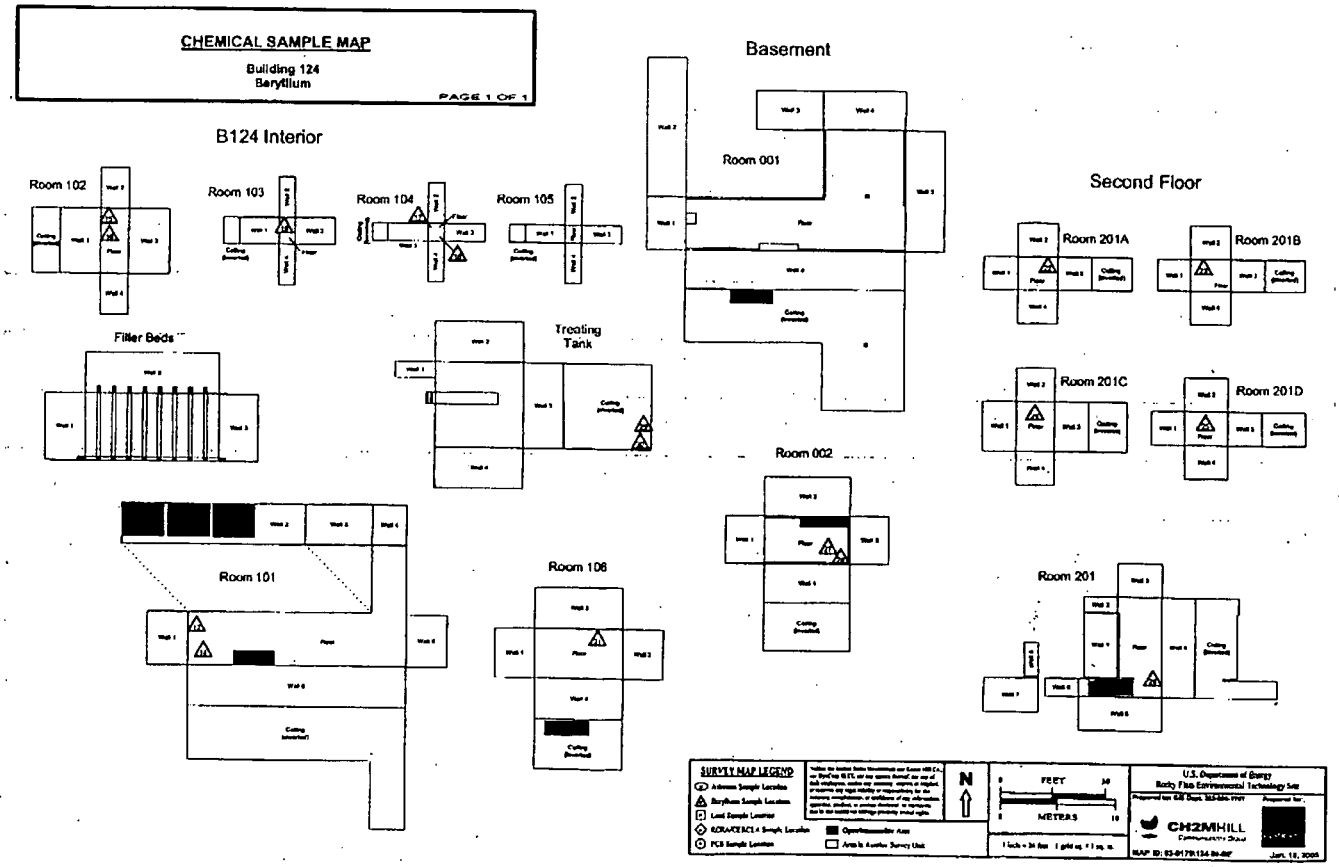
Sample Number	Map Location Point	Room	Material Sampled & Location	Analytical Results
Building 124 - RIN04Z0015				
124-09302003-9-101	1	201	Drywall vertical, non mudded	None Detected
124-09302003-9-102	2	201	Ceiling paint on 200 level	None Detected
124-09302003-9-103	3	101/106	Inside door insulation appears to be fibrous glass	None Detected
124-09302003-9-104	4	106	East outside door appears to be fibrous glass	None Detected
124-09302003-9-105	5	101	Door on north side appears to be fibrous glass	None Detected
124-09302003-9-106	6	101	Exposed cementious grout beneath lime green tile (some tiles are missing)	Trace Chrysotile
124-09302003-9-107	7	106	Wall paint-wall 3	None Detected
124-09302003-9-108	8	101	Wall paint-wall 1	None Detected
124-09302003-9-109	9	1	Wall paint near stairwell-wall 6	None Detected
124-09302003-9-110	10	1	Wall paint near corner-wall 5	None Detected
124-09302003-9-111	11	Upper roof	Upper level of roof beneath sheet metal	None Detected
124-09302003-9-112	12	Lower roof	Grout around toilet vent pipe (2 layers)	Chrysotile 7 and 10 %
124-09302003-9-113	13	Lower roof	Putty/Grout on flashing where lower roof connects to second floor	None Detected
124-09302003-9-114	14	Lower roof	Ridge line putty-center of roof	None Detected
124-0930-2003-9-115	15	Lower roof	South side of roof ventilation hood grout	None Detected
124-09302003-9-116	16	Outside west end	Piping on west side of building. Two mudded elbows, balance is fibrous glass	None Detected
124-09302003-9-117	17	Outside south side	Window putty on south side of building	Chrysotile 3%
124-09302003-9-118	18	Outside north side	Window putty on north side of building	Chrysotile 4%
No ACM was identified in Building 129 during visual inspection (uncoated concrete structure)				


CHEMICAL SAMPLE MAP
Building 124
Asbestos
PAGE 1 OF 1
B124 Interior
Room 102
Room 103
Room 104
Room 105
Filter Beds
Treating Tank
Room 101
Room 106
Basement
Room 001
Room 002
Second Floor
Room 201A
Room 201B
Room 201C
Room 201D
Room 201
SURVEY MAP LEGEND
N
FEET
METERS
CH2MHILL

Beryllium Data Summary

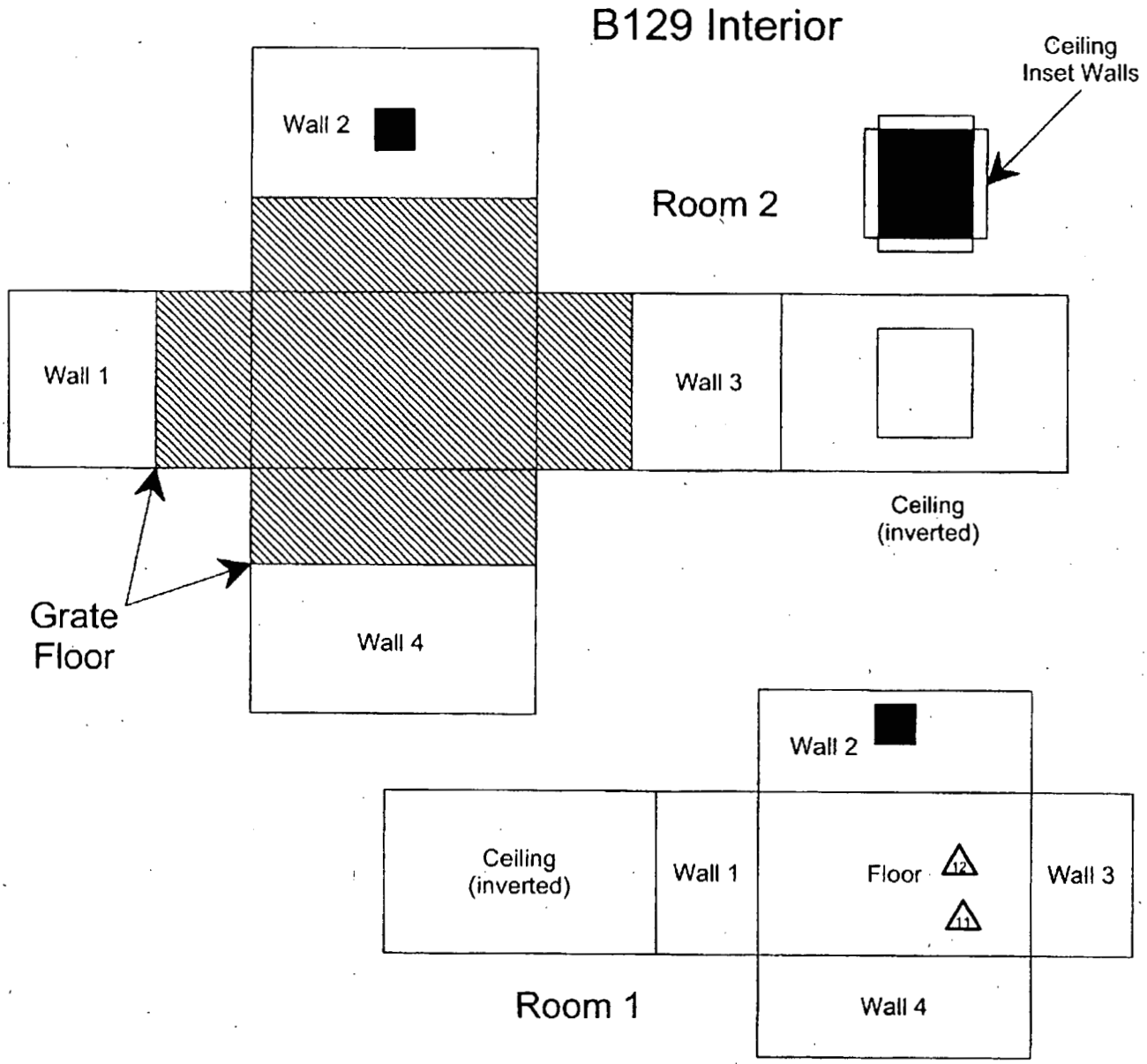
Sample Number	Map Point Location	Room	Sample Location	Result ($\mu g/100\ cm^2$)
RIN 05D0374				
124-01042005-00-001	1	Main	Valve Shed pipe	< 0.1
124-01042005-00-002	2	Main	Valve Shed floor	< 0.1
124-01042005-00-003	3	Main	Pump Pit D1 wall	< 0.1
124-01042005-00-004	4	Main	Pump Pit D2 wall	< 0.1
124-01042005-00-005	5	Main	Pump Pit D3 wall	< 0.1
124-01042005-00-006	6	Main	Pump Pit D4 wall	< 0.1
124-01042005-00-007	7	Main	South Sludge Bed	< 0.1
124-01042005-00-008	8	Main	North Sludge Bed	< 0.1
124-01042005-00-009	9	Main	Manhole wall	< 0.1
124-01042005-00-011	11	1	Building 129 Pump Room pipe	< 0.1
124-01042005-00-012	12	1	Building 124 Pump Room floor	< 0.1
124-01042005-00-013	13	101	Building 124 Window ledge	< 0.1
124-01042005-00-014	14	101	Building 124 Floor	< 0.1
124-01042005-00-015	15	102	Building 124 Desk	< 0.1
124-01042005-00-016	16	102	Building 124 Floor	< 0.1
124-01042005-00-017	17	104	Building 124 Ledge	< 0.1
124-01042005-00-018	18	104	Building 124 Floor	< 0.1
124-01042005-00-019	19	103	Building 124 Floor	< 0.1
124-01042005-00-021	21	106	Building 124 Cabinet	< 0.1
124-01042005-00-022	22	201A	Building 124 Window ledge	< 0.1
124-01042005-00-023	23	201B	Building 124 Cabinet	< 0.1
124-01042005-00-024	24	201C	Building 124 Cabinet	< 0.1
124-01042005-00-025	25	201D	Building 124 Cabinet	< 0.1
124-01042005-00-026	26	201	Building 124 Cabinet	< 0.1
124-01042005-00-027	27	002	Building 124 Floor	< 0.1
124-01042005-00-028	28	002	Building 124 Floor	< 0.1
124-01042005-00-029	29	Treating Tank	Building 124 Overhead ledge	< 0.1
124-01042005-00-030	30	Treating Tank	Building 124 Overhead ledge	< 0.1

Sample #'s 010 and 020 were Lab QA blanks.


CHEMICAL SAMPLE MAP
Building 124
Beryllium
PAGE 1 OF 1
B124 Interior
Room 102
Room 103
Room 104
Room 105
Filter Beds
Treating Tank
Room 101
Room 106
Basement
Room 001
Room 002
Second Floor
Room 201A
Room 201B
Room 201C
Room 201D
Room 201
SURVEY MAP LEGEND
N
FEET
METERS
CH2MHILL

CHEMICAL SAMPLE MAP

Building 129
Beryllium



SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

N

0 FEET 15

0 METERS 5

1 inch = 12 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

Prepared for:

CH2MHILL
Communications Group

KAISER HILL

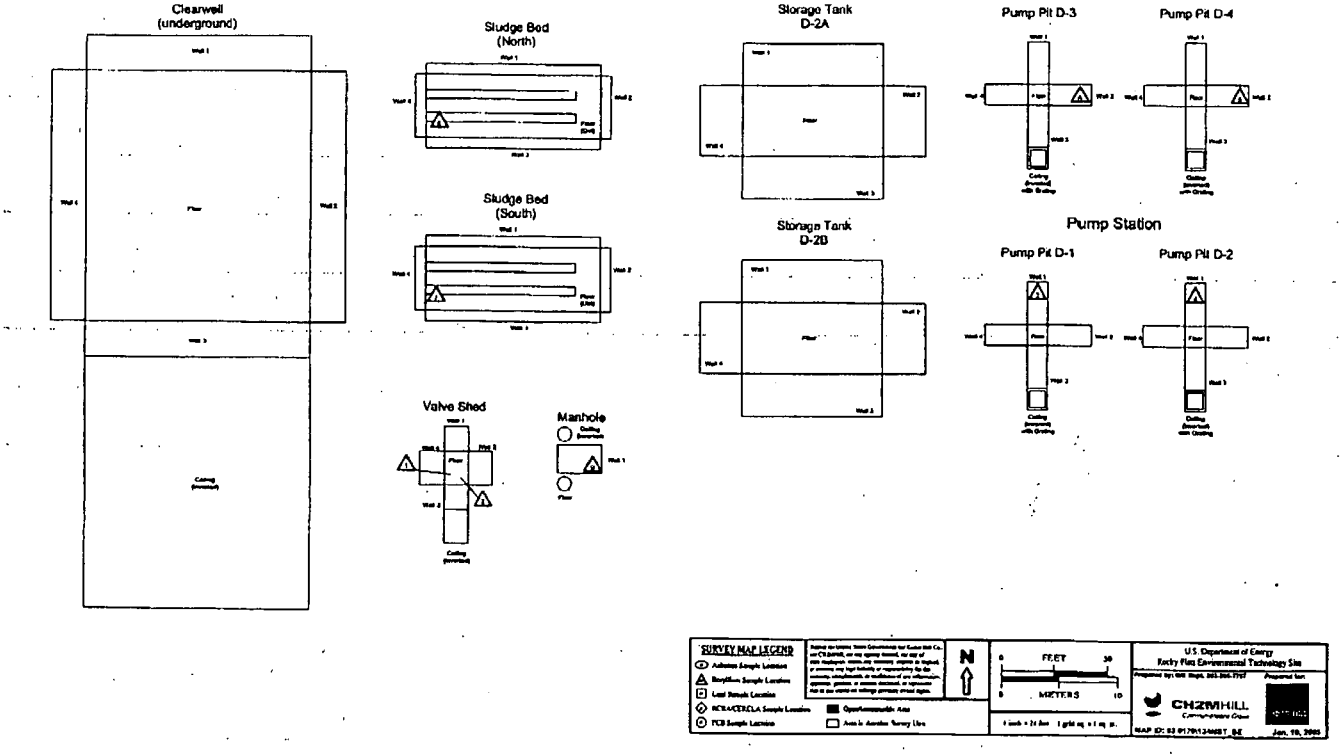
MAP ID: 03-0179\129-IN-BE

Jan. 10, 2005

CHEMICAL SAMPLE MAP

Building: 124 MST
Beryllium

PAGE 1 OF 1



ATTACHMENT E

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically asbestos and beryllium).

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed; the radiological survey assessment is provided in Table E-1, asbestos in E-2, and beryllium in E-3. A data completeness summary for all results is given in Table E-4.

All relevant Quality records supporting this report are maintained in the RISS Characterization Project Files. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for Buildings 124 and 129 based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic $DCGL_w$ (100 dpm/100cm^2) and the Uranium $DCGL_w$ (5,000 dpm/100cm^2) unrestricted release limits.

Consistent with EPA's G-4 DQO process, the radiological survey design was optimized by checking actual measurement results (acquired during pre-demolition surveys) against model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired.

SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable uncertainties, except for asbestos as follows:

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- Four of the eighteen bulk samples of building materials suspected of containing asbestos were positive for ACM in Building 124. The wall paint/plaster in room 103 was trace chrysotile, the grout around the toilet vent pipe was 7% to 10% chrysotile and the putty on the exterior of the south and north side windows were 3% and 4% chrysotile respectively. However, prior to the completion of the RLC, friable and non-friable asbestos abatement and satisfactory clearance sampling was conducted per CDPHE, Regulation No. 8, Part B, *Emission Standards for Asbestos*. On this basis, no additional asbestos sampling was required or performed as part of this RLC and all building materials in Buildings 124 and 129 meet the PDSP asbestos unrestricted release limits.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable unrestricted release levels. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration was verified as acceptable. All results meet the PDS unrestricted release criteria.

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facilities. On this basis, Buildings 124 and 129, and outside structures, meet the unrestricted release criteria with the confidences stated herein.

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Table E-1 V&V of Radiological Surveys – Buildings 124 and 129

V&V CRITERIA, RADIOLGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
	Parameters	Measure	Frequency	COMMENTS
ACCURACY	initial calibrations	90%<x<110%	≥1	Multi-point calibration through the measurement range encountered in the field; programmatic records.
	daily source checks	80%<x<120%	≥1/day	Performed daily/within range.
	local area background: Field	typically < 10 dpm	≥1/day	All local area backgrounds were within expected ranges (i.e., no elevated anomalies.)
PRECISION	field duplicate measurements for TSA	≥5% of real survey points	≥10% of reals	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Units 124501, 129501, 124MST (interior/exterior) and EXT-B-001 (exterior).	statistical and biased	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random and biased measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	units of measure	dpm/100cm^2	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys usable results vs. unusable	>95% >95%	NA	See Table E-4 for details.
SENSITIVITY	Detection limits	TSA: ≤50 dpm/100cm^2 RA: ≤10 dpm/100cm^2	all measures	MDAs ≤ 50% DCGL$_w$ per MARSSIM guidelines.

Table E-2 V&V of Asbestos Results – Buildings 124 and 129

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
ASBESTOS	METHOD: EPA 600/R-93/116	LAB ---->	Reservoirs Environmental, Inc	
QUALITY REQUIREMENT		RIN ---->	RIN04Z0015	
		Measure	Frequency	COMMENTS
ACCURACY	Calibrations: Initial/continuing	below detectable amounts	≥1	Semi-quantitative, per (microscopic) visual estimation.
PRECISION	Actual Number Sampled LCSD Lab duplicates	all below detectable amounts	≥ 18 samples	Semi-quantitative, per (microscopic) visual estimation.
REPRESENTATIVENESS	COC	Qualitative	NA	Chain-of-Custody intact: completed paperwork, containers w/ custody seals.
	Hold times/preservation	Qualitative	NA	N/A
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	See original Chemical Characterization Plan (planning document); for field/sampling procedures (located in project file;) thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	Measurement Units	% by bulk volume	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual samples Usable results vs. unusable	Qualitative	NA	See Table E-4: final number of samples at Certified Inspector's discretion.
SENSITIVITY	Detection limits	<1% by volume	all measures	N/A

Table E-3 V&V of Beryllium Results – Buildings 124 and 129

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB --->	Johns Manville Littleton, Co.	
QUALITY REQUIREMENTS		RIN ---->	RIN05D0374	
		Measure	Frequency	COMMENTS
ACCURACY	Calibrations Initial	linear calibration	≥1	No qualifications significant enough to change project decisions, i.e., classification of Type I facilities confirmed. All results were below associated action levels.
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
	Blanks - lab & field	<MDL	≥1	
	interference check std (ICP)	NA	NA	
PRECISION	LCSD	80%<%R<120% (RPD<20%)	≥1	
	field duplicate	all results < RL	≥1	
REPRESENTATIVENESS	COC	Qualitative	NA	
	hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	
COMPARABILITY	measurement units	ug/100cm^2	NA	
COMPLETENESS	Plan vs. Actual samples *usable results vs. unusable*	>95% >95%	NA	
SENSITIVITY	detection limits	MDL of 0.00084 ug/100cm^2	all measures	

Table E-4 Data Completeness Summary - Buildings 124 and 129

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Asbestos	Building 124 (interior)	12 biased (interior)	18 biased (interior)	[A]ACM present, three (3) results are > 1% by volume, one (1) result was trace ACM was abated and clearance sampling performed per Regulation 8 prior to completion of the RLC	40 CFR763.86; 5 CCR 1001-10; EPA 600/R-93/116 RIN04Z0015 Four locations were identified as containing ACM ranging from trace chrysotile to 10% chrysotile. Prior to the completion of the RLC, friable and non-friable asbestos abatement and satisfactory clearance sampling was conducted per CDPHE, Regulation No. 8, Part B, *Emission Standards for Asbestos*. Refer to the DQA section and section 4.1 for additional discussion.
Asbestos	Building 129 (interior)	12 biased (interior)	0 biased (interior)	No ACM present	40 CFR763.86; 5 CCR 1001-10; EPA 600/R-93/116
Beryllium	Building 124 (interior)	10 biased (interior)	17 biased (interior)	No beryllium contamination found at any location, all results are below associated action levels	OSHA ID-125G RIN05D0374 (sample map locations 13-19 and 21 –30). No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2).
Beryllium	Building 129 (interior)	10 biased (interior)	2 biased (interior)	No beryllium contamination found at any location, all results are below associated action levels	OSHA ID-125G RIN05D0374 (Samples map locations 11 and 12) No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2).

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Table E-4 Data Completeness Summary - Buildings 124 and 129

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	Building 124MST (interior)	0 biased (interior)	9 biased (interior)	No beryllium contamination found at any location, all results are below associated action levels	OSHA ID-125G RIN05D0374 (Samples map locations 1 -9) No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2).
Radiological	Survey Area 5 Survey Unit: 124501 Building 124 – All Surfaces (interior)	55 α TSA (15 random/40 biased) and 55 α Smears (15 random/40 biased) 2 QC TSA 5% scan of all interior surfaces	55 α TSA (15 random/40 biased) and 55 α Smears (15 random/40 biased) 2 QC TSA 5% scan of all interior surfaces	No elevated contamination at any location; all values below PDS unrestricted release levels	Transuranic DCGLs used.
Radiological	Survey Area 5 Survey Unit: 129501 Building 129 – All Surfaces (interior)	35 α TSA (15 random/20 biased) and 35 α Smears (15 random/210 biased) 2 QC TSA 5% scan of all interior surfaces	35 α TSA (15 random/20 biased) and 35 α Smears (15 random/20 biased) 2 QC TSA 5% scan of all interior surfaces	No elevated contamination at any location; all values below PDS unrestricted release levels	Transuranic DCGLs used.

Table E-4 Data Completeness Summary - Buildings 124 and 129

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area 5 Survey Unit: 124MST Building 124 – Miscellaneous Structures (above ground pipes, basins and equipment – exterior)	25 α TSA (15 random/10 biased) and 25 α Smears (15 random/10 biased) 2 QC TSA 5% scan of all exterior surfaces	25 α TSA (15 random/10 biased) and 25 α Smears (15 random/10 biased) 2 QC TSA 5% scan of all exterior surfaces	No elevated contamination at any location; all values below PDS unrestricted release levels	Transuranic DCGLs used.